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FAUNISTIC NOTE

First record of *Exophthalmus albofasciatus* (Coleoptera, Curculionidae, Entiminae) in Mexico feeding on *Coccoloba barbadensis* (Polygonaceae)

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Abstract

The weevil *Exophthalmus albofasciatus* Champion, previously known from Honduras and Belize, is recorded for the first time in Mexico. In addition, the species *Coccoloba barbadensis* (Polygonaceae) is recorded for the first time as a new adult host plant of this species. Photographs of adults are provided to facilitate identification.

Keywords

Coccoloba barbadensis; weevils; host; Neotropical; uvero.

Members of the Entiminae (Curculionidae), commonly referred to as "broad nosed weevils" are a very diverse group with 54 tribes, 1,370 genera, and more than 14,000 described species currently recognized (Alonso-Zarazaga and Lyal 1999; Marvaldi 1998; Marvaldi et al. 2018; Morrone 1999; Thompson 1992; Yunakov 2021).

The genus *Exophthalmus* Schoenherr, is a genus native to the Neotropical Region with approximately 95 species (Franz 2012; Zhang et al. 2016) distributed in Mexico, the West Indies, Central and South America (Bautista-Martínez et al. 2019; O'Brien and Wibmer 1982; Morrone 1999; Vaurie 1961; Wibmer and O'Brien 1986). Fourteen species known for Mexico (O'Brien and Wibmer 1982; Morrone 1999).

Members of this genus feed on tender shoots (as adults) and roots (as larvae) of host plants: Anacardiaceae (*Comocladia* sp.), Fabaceae (*Acacia macracantha* Willd, *Lonchocarpus latifolius* (Willd.) DC, *Gliricidia sepium* (Jacq) Kunth ex Walp, Malvaceae (*Guazuma ulmifolia* Lam, *Hibiscus alatus* Swartz), Polygonaceae (*Coccoloba uvifera* Linnaeus), Salicaceae (*Casearia hirsuta* Sw), Sapindaceae (*Blighia sapida* Koning), Sapotaceae (*Dipholis nigra* Griseb), Rutaceae (*Zanthoxylum flavum* Vahl) (Dixon 1954; Thomas 2011; Vaurie 1961; Woodruff 1985), in addition several species of this genus are considered pests of commercially grown citrus trees (Bautista-Martínez et al. 2019; Vaurie 1961; Woodruff 1985).

Despite their larger size and the conspicuous coloration patterns that characterize many species, the taxonomic limits, composition, and phylogenetic relationships of the genus have been problematic, resulting in difficulty in distinguishing related genera and species (Bautista-Martínez et al. 2019; Franz 2012; Girón and Chamorro 2020). This suggests that further work is needed on the taxonomy of the group (Vaurie 1961) and on ecology and biology of *Exophthalmus* species and related genera, in order to establish generic limits and to distinguish with certainty the species of this genus.

This work reports new distribution records of *Exophthalmus* species in Mexico and records a new adult host plant association.

Specimens of *Exophthalmus albofasciatus* were collected using an entomological insect net in the ranchería la Lima-parrilla located in the city of Villahermosa, Tabasco, Mexico. The site is located at geographic coordinates 17°53.3773'N; 92°56.805'W at 6 m a.s.l and is composed of flooded pasture.

The beetles were killed in ethyl acetate and labeled with geographic, ecological and biological data. Taxonomic identification was made using Champion (1911) and verified by comparison with photographs of type material deposited at the Natural History Museum in London (NHML: NHMUK015019197). The specimens were deposited in the Insect Collection of Manuel Hernández-May, Villahermosa, Tabasco, Mexico (MHMC). In addition, specimens from additional Mexican localities deposited at the Canadian Museum of Nature, Ottawa, Canada (CMNC) were reviewed.

The specimens were photographed using a Canon EOS 70D camera with a Canon EF-S 100 mm macro lens, and final images were prepared using a focus stacking technique with the Zerene Stacker program.

Results and Discussion

Exophthalmus albofasciatus Champion, 1911

(Fig. 1)

=*Diaprepres albofasciatus* (Champion): pag. 180. Tab. VII: Fig. 22, 22a ♂, 23, 23a ♀. B.C.A., Col., IV. Pt.3. Type: NHMUK015019197. Hab. Honduras (Mus. Brit. ♂, Belice River (Stanton, in U.S. Nat. Mus. ♀).

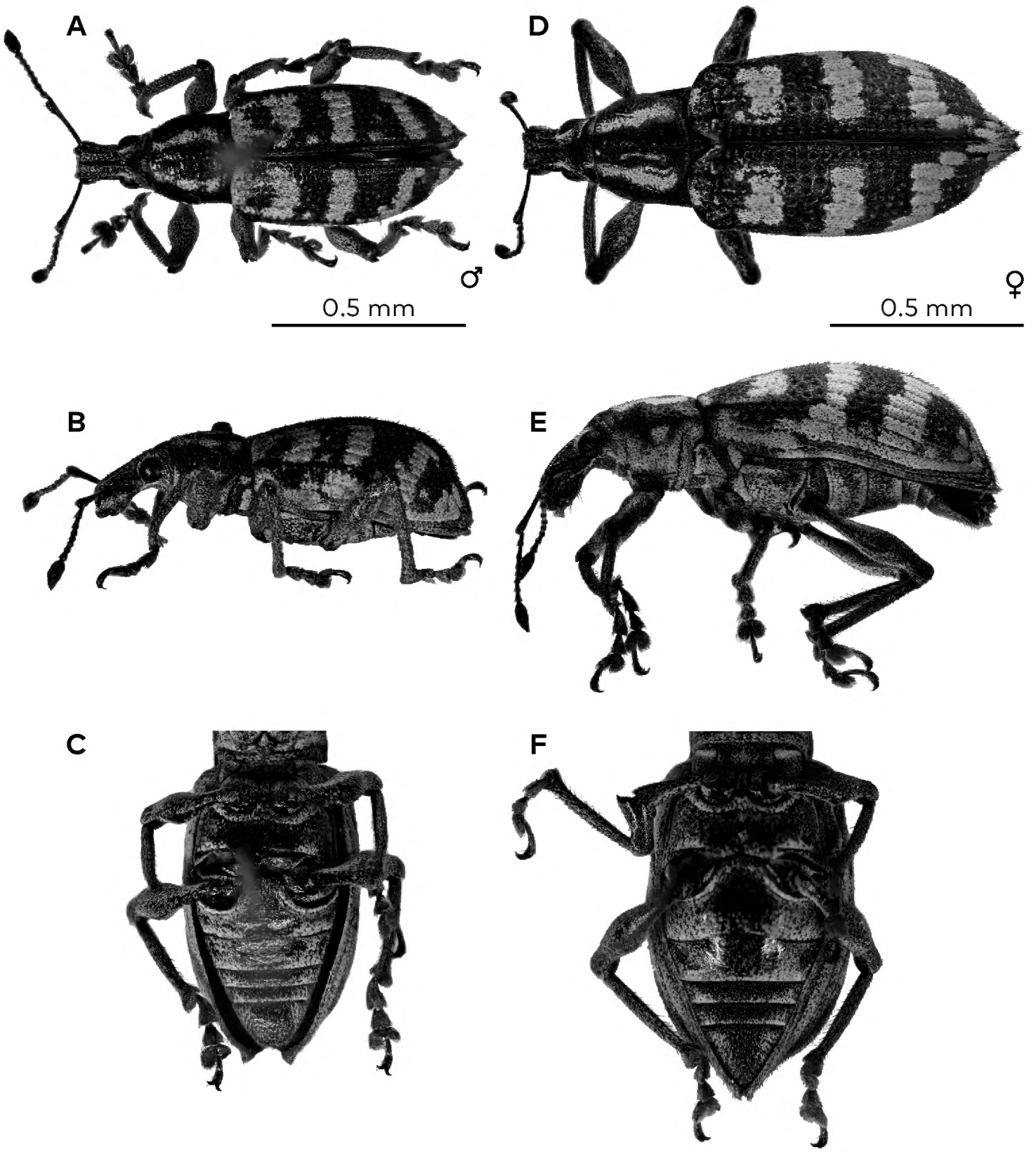

Figure 1. *Exophthalmus albofasciatus* collected in Mexico: ♂ **A** dorsal view; **B** lateral view; **C** last abdominal segment. ♀ **D** dorsal view; **E** lateral view; **F** last abdominal segment.

Identification: Adults of *Exophthalmus albofasciatus* range widely in size; generally the male is smaller than the female. Collected males measure 1.1 to 1.5 cm and females 1.4 to 1.7 cm (Fig. 1A, B, D, E). As described by Champion (1911), the body is bright, black and oval in shape; the prothorax has two white or yellowish-white bands interrupted at the disc, the elytra has three irregular lines, a transverse patch at the base and several dispersed spots arranged asymmetrically, densely covered with imbricate white or yellowish-white scales. The rest of the surface is covered with minute brown or whitish scales and very short brown setae. The legs are covered with small blue or white scales. The head and rostrum are strongly punctate, with blue and yellowish-white scales, the rostrum is longer than the head and is strongly carinate in the middle and sulcate on each side in front of the eyes and the tibiae have no denticles on their inside border.

In males the terminal margin of the fifth abdominal ventrite is rounded, while in females it is pointed (Fig. 1C, F).

Material examined: 15 males, 4 females. **MEXICO, Tabasco**, Villahermosa, Centro, Ranchería La Lima-Parrilla, 17º53.3773'N; 92°56.805'W, 6 m, flooded pasture, 31-VII-2022, on *Coccoloba barbadensis* tree (tocoi, uvero). MoPec and Manuel H. May, Cols. [MHMC]. 6 males, 3 females. Ibib, 09-VIII-2022. José A. Méndez and Manuel H. May, Cols. [MHMC]. 1 male. **Tabasco**, Balancán, Los Mangos, 17º48.033'N; 91°35.339'W, 8 m, secondary vegetation, 02-VII-2017. Manuel H. May, Col. [MHMC]. 9 females. **Chiapas**, Parque Nacional Sumidero, 1000 m, 25-V-1990, H. and A. Howden, Cols. [CMNC]. 3 females. Ibib, 29-V-1990, H. and A. Howden, Cols. [CMNC]. 1 female. Ibib, 6-VI-1990, H. and A. Howden, Cols. [CMNC]. 1 female. 7-VI-1990, H. and A. Howden, Cols. [CMNC]. 1 female. Ibib, 14-VI-1990, H. and A. Howden, Cols. [CMNC]. 1 female. El Aguacero, 16 km W Ocozocoautla, 680 m, 10-VI-1990, H. and A. Howden, Cols. [CMNC]. 1 female. Parque Nacional Sumidero, Coyota Mirador, 1700 m, 15-VI-1989, H. Howden, Col. [CMNC]. 5 females. Ibib, 17-VI-1989, H. Howden, Col. [CMNC]. 1 female. Ibib, 9-VI-1989, H. Howden, Col. [CMNC]. 3 females. **Campeche**, 4mi. E. Fr. Escarcega, Trop. Lowl. for, 350' 23-VII-83. R. Anderson, Col. [CMNC]. 1 female. **BELIZE,** Cayo, Las Cuevas Field Station, 15 km E Caracol, 16º43.98'N; 88°59.16'W, 650 m, 29-VI-3.VII-2019, R. S. Anderson, Col. [CMNC]. 2 females. Ibib, 17-VI-2019, R. S. Anderson, Col. [CMNC]. 1 female. Ibib, 15-VI-2019, R. S. Anderson, Col. [CMNC].

Geographic distribution: *E. albofasciatus* had not previously been recorded in Mexico under its accepted name, nor that of its synonyms, nor in previous studies of this genus of beetles (Bautista-Martínez et al. 2019; O'Brien and Wibmer 1982; Morrone 1999). Earlier records of the species indicated that it was only found in Central America in the countries of Honduras and Belize (Champion 1911). In this work it is recorded for the first time from Mexico, in the states of Campeche, Tabasco and Chiapas (Fig. 2). Mexican states that are close to the distribution reported in the literature.

Biological aspects: According to our observations in Tabasco, adults of *E. albofasciatus* are found during the day on foliage and feed only on young leaves of the

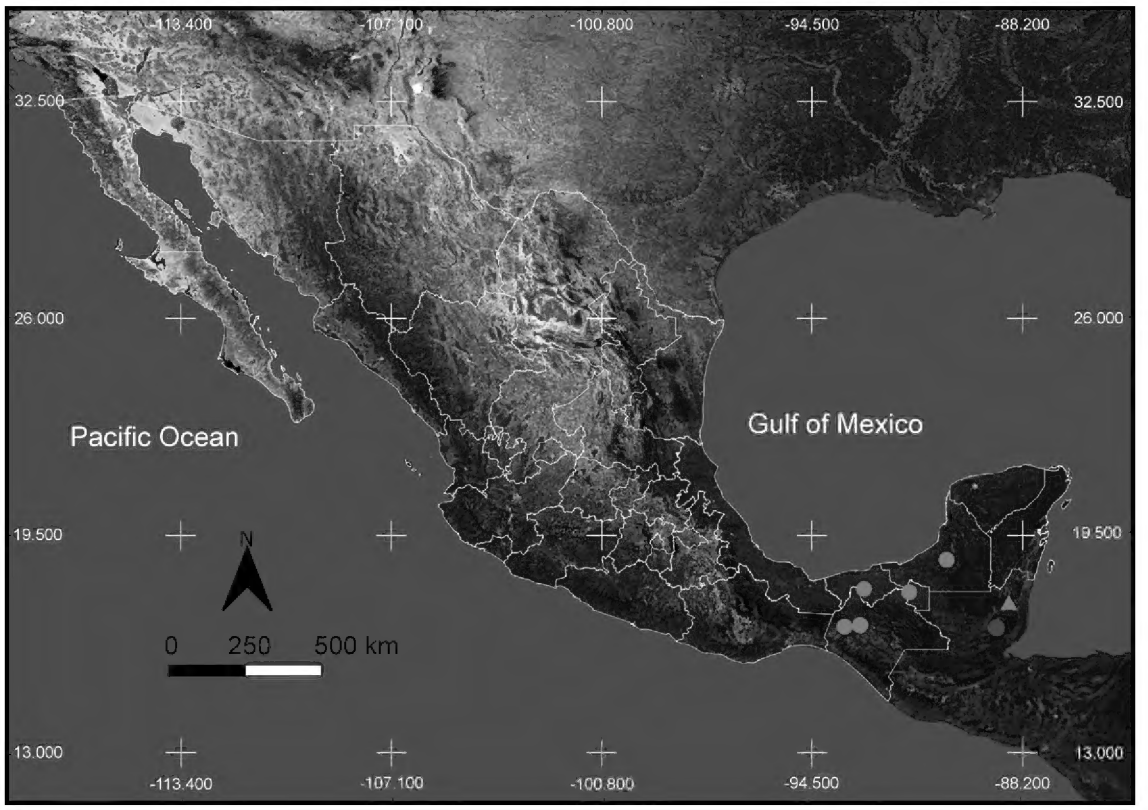

Figure 2. Geographic distribution map of *E. albofasciatus* in Mexico and Central America. Yellow circles: new record for Mexico and Mexican states; blue circle: type locality in Honduras; red triangle: locality extension for Belize.

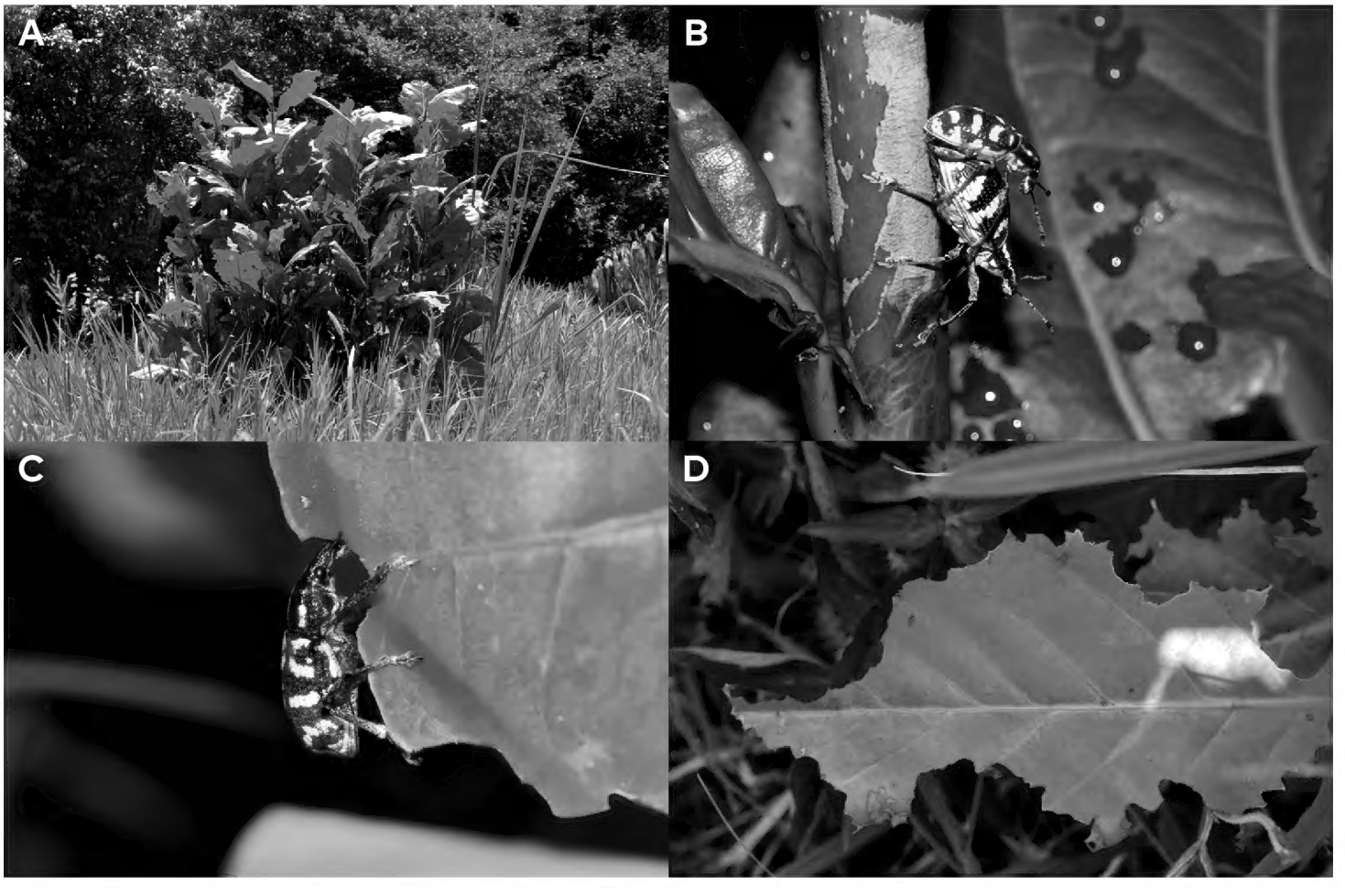

Figure 3. A view of the habitat where *Exophthalmus albofasciatus* was found in La Lima-Parrilla in Tabasco, Mexico. The beetles were collected on *Coccoloba barbadensis* plants in the foreground; **B** mating specimens of *E. albofasciatus*; **C** *E. albofasciatus* feeding on tender leaves of *C. barbadensis*; **D** foliar damage of *E. albofasciatus* on *C. barbadensis*.

plant *Coccoloba barbadensis* Jacquin, 1760 (Polygonaceae; Fig. 3). According to the available literature for the genus (Dixon 1954; Thomas 2011; Vaurie 1961; Woodruff 1985), *C. barbadensis* is reported for the first time as a new adult host plant of *E. albofasciatus*.

Despite their diversity and economic importance, surprisingly little is known of weevil host plant associations. Here, we record a new adult host plant association for *Exophthalmus albofasciatus*. Although this species is not classified as a pest, the damage caused to new shoots and leaves can cause stress to the affected trees and surveys to delimit the geographic distribution of *E. albofasciatus* and to establish the extent of the foliar damage it causes on its host are necessary.

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